

The Digestive System

UNIT 3 More Body Systems



Foods contain nutrients your body needs to move, grow, and repair itself.

Nutrition Facts

Serving Size: 1/2 cup dry (40g)
Servings Per Container 13

Amount Per Serving	With 1/2 cup of Vit A&D Fortified Skim Milk	
	Cereal Alone	
Calories	150	190
Calories From Fat	25	25
	% Daily Value*	
Total Fat 3g	5%	5%
Saturated Fat 0.5g	2%	2%
Polyunsaturated Fat 1g		
Monounsaturated Fat 1g		
Cholesterol 0mg	0%	0%
Sodium 0mg	0%	3%
Total Carb 27g	9%	11%
Dietary Fiber 4g	15%	15%
Soluble Fiber 2g		
Insoluble Fiber 2g		
Sugars 1g		
Protein 5g		
Vitamin A	0%	4%
Vitamin C	0%	2%
Calcium	0%	15%
Iron	10%	10%

Nutrients

Food. It can be crunchy or soft. It can be sweet or sour. You can pick it off a tree or buy it in a store. It may be fresh, frozen, or come in cans and boxes. There is a lot of food to choose from. But what kind of food is good for you?

Your body needs certain raw materials to move, grow, and repair itself. These raw materials are called **nutrients**. Nutrients are the parts of food your body can use.

Two different foods can contain the same nutrient. For example, both cheeses and meats contain **proteins**. Your body needs proteins to grow. It uses proteins to repair body tissue. Proteins are found in fish and milk. Eggs, peas, and some kinds of beans are good sources of protein, too.

Another nutrient needed by your body is **carbohydrates**. Carbohydrates are either starches or sugars. Your body uses carbohydrates to produce energy. Fruits, breads, cereals, pasta, and most vegetables contain carbohydrates. If you eat more carbohydrates than you need, your body stores them as fat.

Like carbohydrates, **fats** give your body energy. Fats are important nutrients. But you should not eat more fats than you need. Meats, cheeses, and butter have fat. But it is healthier to get fats from vegetable sources. These include nuts, corn oil, and soybean oil.

You should read food container labels. They tell which nutrients are in food.

A. Fill in the missing word.

1. The raw materials your body needs are called _____.
(cells, nutrients)
2. Both cheeses and meats contain _____. (milk, proteins)
3. Sugar is a kind of _____. (carbohydrate, protein)
4. For energy, your body uses _____.
(bones, carbohydrates)
5. Proteins are found in milk and _____. (water, fish)

B. Answer True or False.

1. Two different foods can contain the same nutrient. _____
2. Nutrients are the part of food your body has to get rid of. _____
3. Your body needs proteins to grow and repair body tissue. _____
4. Fats do not supply energy to your body. _____
5. Nuts and oils have fats. _____

C. Write the letter for the correct answer.

1. Your body uses the _____ from food.
(a) fruits (b) nutrients (c) waste
2. It is healthier to get most of your fats from _____.
(a) sugars (b) vegetable sources (c) meat
3. If you eat too many carbohydrates, your body will store them
as _____.
(a) blood (b) fat (c) sugar
4. A food that contains proteins is _____.
(a) fruit (b) water (c) milk
5. Breads and pasta are sources of _____.
(a) carbohydrates (b) fats (c) proteins
6. Carbohydrates are either starches or _____.
(a) salts (b) sugars (c) fats

The Digestive System

Vitamins and Minerals

Getting the right amounts of carbohydrates, fats, and proteins can keep you healthy. But these three nutrients need help to do their jobs correctly. They get the help they need from two other nutrients, **vitamins** and **minerals**.

Vitamins and minerals help other nutrients do their jobs in three important ways. First, they control the way your body uses carbohydrates for energy. They also control how fast cells grow. Vitamins and minerals keep all body systems working smoothly.

The table below shows some important vitamins and minerals. It tells which foods contain these vitamins. It also explains what the vitamins and minerals can do.

VITAMINS	Needed for	Sources
A	Healthy skin, eyes, and teeth	Vegetables, eggs, liver
B	Making red blood cells, using food for energy	Vegetables, nuts, grains, meats
C	Healthy teeth, gums, and blood vessels	Citrus fruits, tomatoes
D	Healthy bones and teeth	Milk, fish, liver

MINERALS	Needed for	Sources
Iron	Healthy red blood cells	Green vegetables, meat, raisins
Calcium	Strong bones	Green vegetables, milk, fish
Sodium	Correct amount of water in the body	Meat, cheese, salt
Zinc	Repairing tissue	Fish, meat, grains, beans

A. Use the table of vitamins and minerals to answer the questions.

1. Vitamins and _____ help other nutrients do their jobs.
(minerals, fats)
2. Vitamin C can be found in _____. (nuts, citrus fruits)
3. If you want healthy red blood cells, eat foods rich in the mineral
_____. (liver, iron)
4. For healthy skin, eyes, and teeth, eat foods rich in
_____. (vitamin A, sodium)
5. Calcium is found in _____. (raisins, milk)

B. Answer the questions.

1. Name three things that vitamins and minerals can do.

2. List two foods that contain vitamin A.

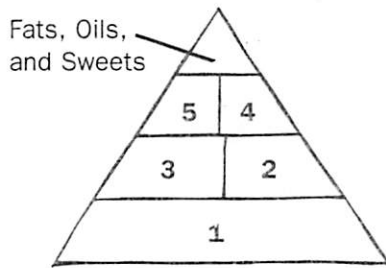
3. Name three body parts that need vitamin C to stay healthy.

C. Underline the answer to each question.

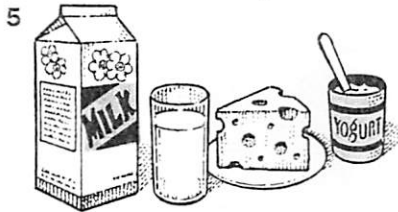
1. Which two nutrients help other nutrients?
(vitamins and minerals, fats and sugars)
2. Which vitamin keeps your gums healthy? (sodium, vitamin C)
3. Which food contains vitamin B? (raisins, grains)
4. Which mineral grows strong bones? (vitamin A, calcium)

The Digestive System

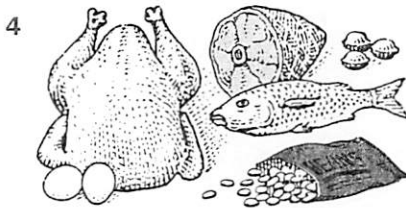
Food Groups and a Balanced Diet



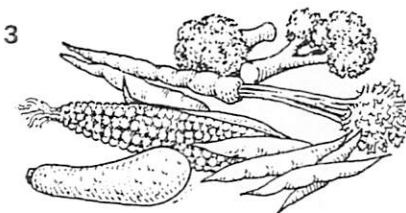
Food Guide Pyramid



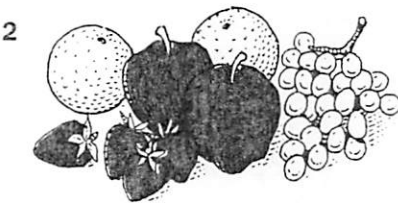
Dairy Group



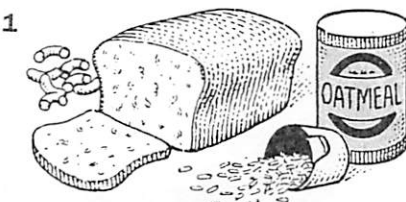
Meat Group



Vegetable Group



Fruit Group



Bread Group

How do you know which nutrients are in food? You can read food container labels. You can also use the food guide pyramid. It shows the food groups. It suggests a daily number of servings from each group.

To read the pyramid start at the bottom. The large group on the bottom is the **Bread Group**. Bread, cereal, rice, and pasta are in this group. These foods have vitamins, minerals, fiber, and carbohydrates. These foods give you energy. A minimum of six servings a day are suggested.

The next level has the **Vegetable** and **Fruit Groups**. These foods keep body cells healthy. A minimum of three servings of vegetables and two of fruit are suggested. These foods are better for you when they are eaten uncooked.

The next level has the **Meat** and **Dairy Groups**. Foods from these groups give us proteins, vitamins, and minerals. We need proteins for growth and repair of body cells. Milk and other dairy products have calcium. Calcium makes strong teeth and bones. A minimum of two servings a day from each of these groups is suggested.

Fats, Oils, and Sweets are at the tip of the pyramid. We get energy from these foods, but they have very few vitamins and minerals. Salad dressing and candies belong here. People should go easy on these foods.

Eating daily from all the food groups will give you a balanced diet. But you have to make healthy choices from each group. Then you will feel strong and healthy.

A. Answer True or False.

1. There are nine basic food groups. _____
2. Eating meat once a week is enough for a balanced diet. _____
3. Eating foods from one food group will keep you healthy. _____
4. The food guide pyramid shows the food groups. _____

B. Draw lines between the food and the group it belongs to.

- | | |
|------------|------------|
| 1. fish | dairy |
| 2. cheese | vegetables |
| 3. carrots | bread |
| 4. oatmeal | meat |

C. Fill in the missing word.

1. Dairy foods supply _____. (proteins, cereals)
2. Milk and other dairy products have _____. (calcium, vitamins)
3. Eat cereals and breads at least _____ times a day. (6, 2)
4. Meat is a good source of _____. (sugar, protein)

D. Answer the questions.

1. List the basic food groups. _____

2. How can a lack of protein affect a person? _____

3. How can a lack of vitamins or minerals affect a person? _____

The Digestive System

Calories

FOOD CALORIES	
apple	80
baked potato	145
banana	100
bread (1 slice)	80
butter (1 Tbsp.)	100
cheddar cheese, (1 oz.)	115
chicken (3 oz.)	115
cola (12 oz.)	145
egg (hard boiled)	80
green beans (1 cup)	30
ground beef (3 oz.)	220
ice cream (1 cup)	275
lowfat milk (1 cup)	120
mayonnaise (1 Tbsp.)	100
oatmeal (1 cup)	130
orange	65
peanuts (½ cup)	420
potato chips (10)	115
tomato	25
tuna (3 oz.)	170
yogurt (8 oz.)	145

You get energy from the food you eat. The energy in food is measured in **calories**. Some foods have more calories than others. A tomato has about 25 calories. A cup of ice cream has about 275 calories. You could eat 11 tomatoes to equal the number of calories in a cup of ice cream!

Your body uses calories for all its activities. Every time your hand moves or your heart beats, some calories are used. What happens if your body does not use all the calories in the food you eat? Then the unused calories are stored as fat.

How many calories you need depends upon the amount of energy your body needs. If you are active, then your body needs lots of energy. The calories you take in will be used up. You can eat a lot without getting fat.

If you are not very active, your body needs less energy. If you eat a lot, all the calories in your food may not get used up. Your body will store the calories as fat.

There are two things you can do to lose extra fat. You can exercise to use more calories. Or you can cut down on high-calorie foods. That way your body will have fewer calories to use. But using both methods is the best way to lose weight.

Whether you need to lose weight or not, stay away from empty calories. Empty calories are found in foods that are high in calories but low in vitamins and minerals. Candy, soft drinks, and other "junk" foods are empty-calorie foods.

A. Write the letter for the correct answer.

1. The number of calories you need depends upon _____.
(a) the energy you need (b) your bones (c) your heart
2. Candy and soft drinks contain _____.
(a) many nutrients (b) empty calories (c) all you need
3. Unused calories are stored as _____.
(a) sugar (b) bone (c) fat
4. A person can lose weight by _____.
(a) eating "junk" food (b) exercising (c) being less active

B. Answer True or False.

1. The energy you get from food is measured in calories. _____
2. All foods have the same number of calories. _____
3. Every activity you do uses up calories. _____
4. Empty-calorie foods are high in vitamins. _____

C. Choose the correct answer.

1. "Junk" food is food with _____.
(empty calories, nutrients)
2. You can lose weight by cutting down on _____.
(protein, high-calorie foods)
3. Active bodies need a lot of _____. (energy, candy)
4. Exercising more makes your body use more _____.
(vitamins, calories)

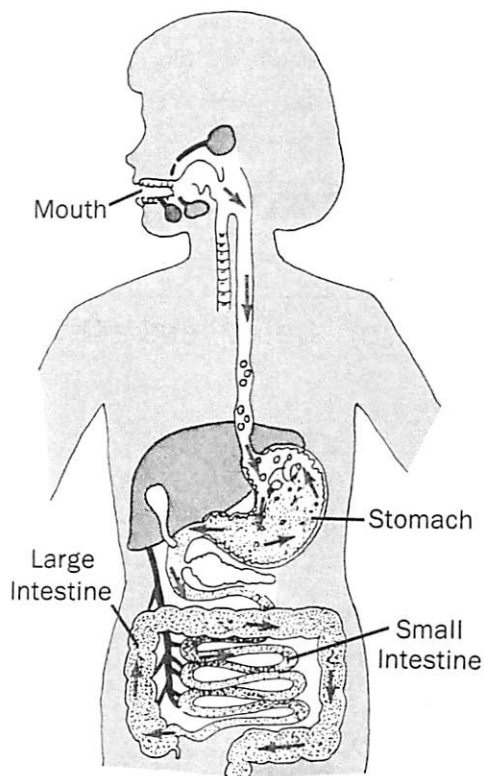
D. Answer the questions.

1. What do calories measure? _____

2. What happens if your body does not use all the calories you take in?

The Digestive System

How Digestion Begins



The Digestive System

How does the body take what it needs from food? The body gets its raw materials from food by the process of digestion. Digestion is the breaking down of food into nutrients.

The nutrients from food go into the blood. The blood carries the nutrients to all the body cells. Body cells use the nutrients to produce energy. The part of the food that the body cannot use is removed from the body. How does food travel through your body?

Your **digestive system** is like a long tube. As food moves through the tube, it is changed by different organs. First, some organs grind up the food. Then others change it by mixing it with chemicals. Next, other organs move the nutrients from the food into the blood. Finally, the unused part of the food is sent out of the body. The main organs of the digestive system are the **mouth**, the **stomach**, the **small intestine**, and the **large intestine**.

Food enters your body through your mouth. As your teeth grind up the food, it mixes with a liquid called **saliva**.

Saliva contains a chemical that can change starch into sugar. Once the starch in your food has become sugar, it can pass into the blood. Then the body can use the sugar to make energy.

When food leaves your mouth, it is still not completely digested. More starch needs to be changed into sugar. Proteins and fats have to be broken down. Digestion continues in the stomach.

A. Complete each sentence. Use the words below.

digestion	nutrients	saliva
mouth	organ	sugar

1. The body gets its raw materials from food by the process of _____.
2. Food enters your body through your _____.
3. The liquid in your mouth is called _____.
4. Saliva contains a chemical that changes starch into _____.
5. Digestion is the breaking down of food into _____.

B. Answer True or False.

1. Digestion helps grind food into smaller pieces. _____
2. The small intestine is an organ of the digestive system. _____
3. In the digestive system, food is mixed with chemicals. _____
4. Every part of food is used by the body. _____
5. When food leaves the mouth, it is completely digested. _____

C. Number the sentences to show what happens to food during digestion. The first one is done for you.

- _____ Nutrients from the food go into the blood.
- 1 Food is ground up.
- _____ Food is mixed with chemicals.
- _____ The unused part of food is sent out of the body.

D. List the four main organs of the digestive system.

The Digestive System

Digestion Continues

In the stomach, more chemicals are mixed with food. Stomach juices begin to break down proteins. Stomach muscles act like a blender to mix the food. By the time the food leaves the stomach, it has become a liquid.

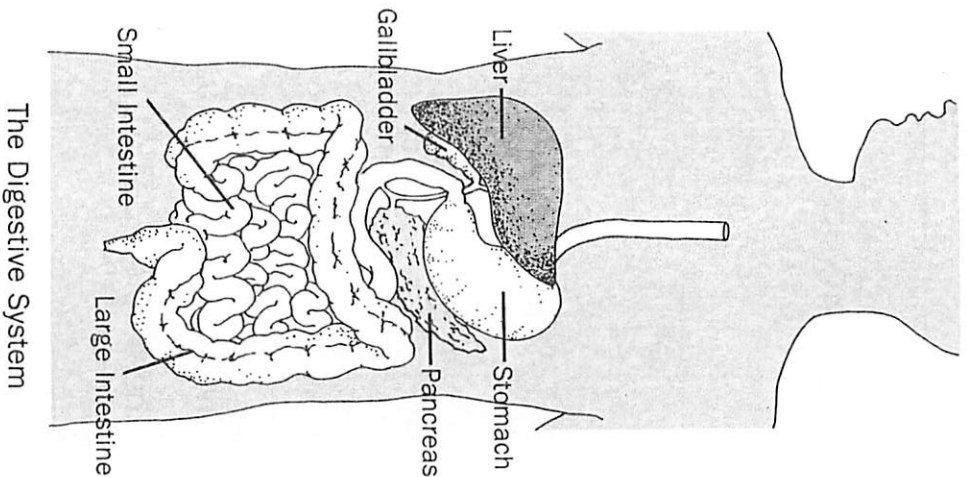
Now is the time for the most important step of digestion. The partly digested food moves from the stomach into the small intestine. The small intestine is like a hose. If it were stretched out straight, it would be about 20 feet long.

As food moves slowly along this “hose,” its nutrients pass through the walls of the small intestine. These walls are lined with tiny blood vessels. Like water soaking into a sponge, the nutrients pass into the tiny blood vessels. Then the blood carries the nutrients to every cell in the body.

The process of digestion is helped by other organs. The **liver** and the **gallbladder** pump chemicals into the small intestine. These chemicals help break down fats. The **pancreas** pumps in other chemicals. These chemicals break down fats as well as proteins and starches.

When too much sugar is produced during digestion, the body has to store it. This is another job of the liver. It stores sugar that the body does not need.

Eventually, the food that is left passes out of the small intestine. It moves into the large intestine. From here it will be carried out of the body.



A. Write the letter for the correct answer.

1. By the time food has left the stomach, it is already _____.
(a) completely digested (b) a liquid (c) energy
2. The organ that helps store extra sugar is the _____.
(a) liver (b) stomach (c) mouth
3. Juices in the stomach help break down _____.
(a) proteins (b) fruit (c) water
4. In the small intestine, nutrients pass into _____.
(a) the stomach (b) blood vessels (c) the food

B. Answer True or False.

1. Stomach muscles act like a blender to mix food. _____
2. Food passes from the stomach into the large intestine. _____
3. Blood carries digested food to all parts of the body. _____

C. Put the main organs of the digestive system in the correct order.

stomach _____

mouth _____

large intestine _____

small intestine _____

D. Answer the questions.

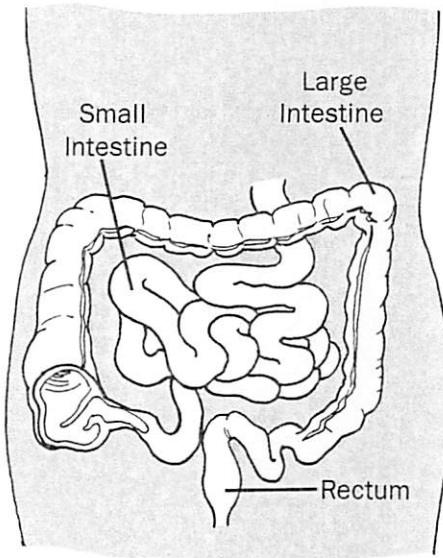
1. What happens to nutrients in the small intestine? _____

2. What happens to food that is not digested in the small intestine?

3. Name two jobs of the liver. _____

The Excretory System

Solid Waste



The excretory system removes solid waste.

Once food leaves the small intestine, most of its usable parts have been removed. Only waste products and extra water are left. The job of the **excretory system** is to remove waste from the body.

The undigested food moves from the small intestine into the large intestine. Some water is removed for use by the body. The solid waste is pushed through the large intestine by muscles.

In the large intestine, tiny organisms called **bacteria** begin to feed on the waste. Bacteria break down the waste.

Finally, the waste reaches the end of the large intestine. It passes through the last part of the digestive system. This is known as the **rectum**. Muscles in the rectum push waste out of the body.

A. Choose the correct answer.

1. After food leaves the small intestine, only _____ and water are left. (nutrients, waste)
2. The _____ is the last part of the digestive system. (rectum, small intestine)
3. In the large intestine, organisms called _____ feed on waste. (bacteria, nutrients)

B. Answer True or False.

1. Muscles in the rectum push waste out of the body. _____
2. In the large intestine, some of the water is removed from food for use by the body. _____

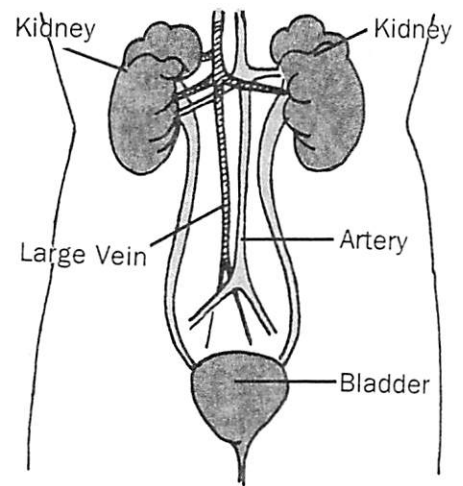
The Excretory System

Liquid Waste

Remember that your body needs to get rid of undigested food. The excretory system removes this solid waste from the body. But the body also needs a way to get rid of harmful chemicals. And it has to remove extra water. This liquid waste is also removed by the excretory system.

The main organs of the excretory system are the **kidneys**. The kidneys are two bean-shaped organs about the size of your fist. The kidneys act as filters. As blood passes through them, the kidneys filter out water, salts, and harmful chemicals. The liquid that is produced is called **urine**.

Urine moves from the kidneys to the **bladder**. When your bladder is full, you feel the need to empty it. Then urine passes from your bladder out of the body.



The excretory system removes liquid waste.

A. Answer True or False.

1. Your body saves every part of the food you eat. _____
2. Liquid waste is filtered through the kidneys. _____

B. Choose the correct answer.

1. The main organs of the excretory system are the _____.
(kidneys, bladder)
2. The liquid waste of the body is _____. (water, urine)
3. Liquid waste moves from the kidneys to the _____.
(bladder, intestine)
4. Along with water, urine also contains _____. (food, salts)